REMARKS

Amendments

Claims 1-36 are pending in the instant application, and are subject to restriction. New claim 37 has been added. Claims 1, 13, 14, 15, 17 and 18 have been amended to either directly or indirectly depend from new claim 37. Claims 16 and 26-36 have been cancelled without prejudice. Accordingly, claims 1-15, 17-25 and 37 will be pending upon entry of the instant amendment. Support for new claim 37 is found throughout the specification and claims as originally filed. For example, support for new claim 37 is found on page 28, line 7-11. Support for the amendment to the remaining claims is self-evident. Amendment to the claims does not constitute the addition of new matter. Attached hereto as Appendix A is a marked-up version of the amended claims to show the changes made.

Restriction Requirement

The Examiner has required restriction to one of the following inventions under 35 U.S.C. 121:

Group I: Claims 1-12, drawn to methods of identifying antibiotics comprising contacting an assay composition comprising a CoaX protein with a test compound and determining the ability of the compound to inhibit CoaX protein activity, classified in class 424, subclass 9.2;

Group II: Claim 13, drawn to methods of identifying antibiotics comprising contacting an assay composition comprising a CoaX protein with a test compound and determining the ability of the compound to bind CoaX, classified in class 424, subclass 9.2;

Group III: Claim 14, drawn to methods of identifying antibiotics comprising contacting an assay composition comprising a CoaX protein with a test compound and determining the ability of the compound to inhibit CoaX protein activity, and to bind CoaX, classified in class 424, subclass 9.2;

Group IV: Claim 15, drawn to methods of identifying antibiotics comprising contacting an assay composition comprising a CoaX protein with a test compound and determining the ability of the compound to modulate the ability of pantothenate to bind CoaX, classified in class 424, subclass 9.2;

Group V: Claim 16, drawn to methods of identifying antibiotics comprising contacting an assay composition comprising a CoaX protein with a test compound and determining the ability of the compound to modulate the ability of pantothenate to bind CoaX, and to inhibit CoaX protein activity, classified in class 424, subclass 9.2;

Group VI: Claim 17, drawn to methods for identifying compounds that modulate pantothenate kinase activity comprising contacting a recombinant cell expressing a single pantothenate kinase encoded by a coax gene with a test compound and determining the compound's ability to modulate the kinase's activity, classified in class 424, subclass 9.2;

Group VII: Claims 18-25, drawn to methods for identifying compounds that modulate pantothenate kinase activity comprising contacting a recombinant cell expressing a first and a second pantothenate kinase with a test compound and determining the compound's ability to modulate kinase activity of either the first or second kinase, classified in class 424, subclass 9.2;

Group VIII: Claims 26, 34, 35, and 36 drawn to isolated nucleic acid molecules comprising a CoaX gene, classified in class 536, subclass 23.7;

Group IX: Claims 27-33, drawn to isolated pantothenate kinase proteins, classified in class 530, subclass 350; and

Group X: Claim 36, drawn to recombinant PA876 microorganism wherein the CoaX gene has been deleted, classified in class 435, subclass 252.3.

If Group I is elected, the Examiner further requires an additional restriction under 35 USC 121 of the invention to one of Groups I1 to I33, wherein Groups I1 to I33 correspond to the method of Group I wherein the CoaX protein is represented by SEQ ID NO:12, SEQ ID NO:70, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:2, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:3, SEQ ID NO:57, SEQ ID NO:8, SEQ ID NO:59, SEQ ID NO:7, SEQ ID NO:61, SEQ ID NO:6, SEQ ID NO:63, SEQ ID NO:4, SEQ ID NO:13, SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:11, SEQ ID NO:21, SEQ ID NO:55, SEQ ID NO:14 or SEQ ID NO:67, SEQ ID NO:43 or SEQ ID NO:22, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:20, SEQ ID NO:10, SEQ ID NO:65 and SEQ ID NO:5, respectively.

If Group VII is elected, the Examiner further requires an additional restriction under 35 USC 121 to Group VII1 or VII2, wherein groups VII1 to VII2 correspond to the methods of group VII wherein the recombinant cell is

VII1: Escherichia coli; or
VII2: Bacillus subtlis.

If Group VIII is elected, the Examiner further requires an additional restriction under 35 USC 121 to one of Groups VIII1-VIII4, wherein the nucleic acid comprises

VIII1: B. Subtlis CoaX
VIII2: H. Pylori CoaX
VIII3: P. aeruginosa CoaX; or
VIII4: a Yac B gene.

If Group IX is elected, the Examiner further requires an additional restriction under 35 USC 121 to one of Groups IX1 to Group IX32, wherein Groups IX1 to Group IX32 correspond to the method of Group IX, wherein the CoaX protein is represented by: SEQ ID NO:12, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:2, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:3, SEQ ID NO:57, SEQ ID NO:8, SEQ ID NO:59, SEQ ID NO:7, SEQ ID NO:61, SEQ ID NO:6, SEQ ID NO:63, SEQ ID NO:4, SEQ ID NO:13, SEQ ID NO:9, SEQ ID NO:15, SEQ ID NO:11, SEQ ID NO:21, SEQ ID NO:55, SEQ ID NO:14 or SEQ ID NO:67, SEQ ID NO:43 or SEQ ID NO:22, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:20, SEQ ID NO:10, SEQ ID NO:65 and SEQ ID NO:5, respectively.

Applicants gratefully acknowledge the telephonic interview held March 31, 2003, with Examiner Lucas, Supervisory Patent Examiner Housel, the undersigned, and Elizabeth A. Hanley (Reg. No. 33,505), to discuss Applicants' position regarding the restriction of the invention. As stated by Applicants in the interview, Applicants respectfully traverse the above stated restriction of the invention.

Applicants assert that the subject matter of Groups I-VII, claims 1-25, represent different embodiments of a single inventive concept which merit examination in a single application. More particularly, all the claims are linked by a single, searchable, unifying aspect; i.e., assays for the identification of antibiotics which feature the determination of an effect on a pantothenate kinase (e.g., CoaX), wherein said assays all utilize pantothenate kinase-based readout in their

determination. Exemplary pantothenate kinase-based readouts include determining the ability of the compound to inhibit CoaX protein activity; determining the ability of the compound to bind CoaX; determining the ability of the compound to inhibit CoaX protein activity, and to bind CoaX; determining the ability of the compound to modulate the ability of pantothenate (or a pantothenate analog) to bind CoaX; and determining the compound's ability to modulate the kinase's activity in a recombinant cell expressing the kinase.

Applicants submit that the search and examination of claims 1-25 (and newly added claim 37) would have substantial overlap, as evidenced by the identical classification of the inventions of Groups I-VII by the Examiner. Thus, no serious burden would result from searching and examining all claims in the same application. As the M.P.E.P. states:

> If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.
>
> M.P.E.P. § 803 (7th ed., Rel. 78A, March 1999).

To further illustrate this unity of invention, Applicants set forth newly added claim 37 which is generic to groups I-VII as set forth by the Examiner. Applicants submit that Groups I-VII should be reformed as a single group, the group also including new Claim 37. Applicants respectfully request that substantive examination proceed with respect to these claims.

In order to be fully responsive to the outstanding Office Action, Applicants hereby provisionally elect ***Group I, with traverse,*** which corresponds to claims 1-12, for prosecution on the merits. As Group I is subject to further restriction by the Examiner as to the CoaX protein amino acid sequence, Applicants further elect ***Group I6***, which corresponds to the amino acid sequence of SEQ ID NO: 2. As Group VII is subject to further restriction by the Examiner as to the microorganism, Applicants further elect ***Group VII2*** which corresponds to *Bacillus subtlis*. Regarding these further elections, Applicants request clarification as to whether the further restriction of Groups I and VII is a species election or is another restriction. If this is another restriction of the invention, Applicants traverse this restriction and argue that Groups I1-I33 and Groups VII1-VII2 represent patentably distinct species of the inventions of Groups I and VII, respectfully, and request reconsideration of this restriction.

Applicants further reserve the right to traverse this restriction to the remaining, non-elected inventions (Groups VIII-X) in future prosecution.

SUMMARY

If a telephone conversation with Applicants' Attorney would expedite the prosecution of the above-identified application, the Examiner is urged to call the undersigned at (617) 227-7400.

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APPENDIX A
VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claims 13, 14, 15, 17 and 18 have been amended, as follows:

1. (Amended) [An assay for the identification an antibiotic comprising:

(a) contacting an assay composition comprising a CoaX protein with a test compound; and

(b)] The assay of claim 37 wherein the pantothenate kinase is a CoaX protein and wherein step (b) comprises determining the ability of the test compound to inhibit the activity of the CoaX protein[;

wherein the compound is identified as an antibiotic based on the ability of the compound to inhibit the activity of the CoaX protein].

13. (Amended) [An assay for the identification a potential antibiotic comprising:

(a) contacting an assay composition comprising CoaX with a test compound; and

(b)] The assay of claim 37 wherein the pantothenate kinase is a CoaX protein and wherein step (b) comprises determining the ability of the test compound to bind to the CoaX protein[;

wherein the compound is identified as a potential antibiotic based on the ability of the compound to bind to the CoaX].

14. (Amended) [An assay for the identification an antibiotic comprising:

(a) contacting an assay composition comprising CoaX with a test compound;

(b) determining the ability of the test compound to bind to the CoaX;

(c) selecting the test compound as a potential antibiotic based the ability to bind to the CoaX ; and

(d) further] The assay of claim 13 further comprising determining the ability of the [selected] test compound to inhibit the activity of [a] the CoaX protein;

wherein the compound is identified as a potential antibiotic based on the ability of the compound to bind to and inhibit the activity of the CoaX protein.

15. (Amended) [An assay for the identification a potential antibiotic comprising:

(a) contacting an]

The assay of claim 37 wherein the pantothenate kinase is CoaX protein, wherein the assay composition [comprising CoaX with a test compound and] further comprises pantothenate or a pantothenate analog[;] and

[(b)] wherein step (b) comprises determining the ability of the test compound to modulate binding of the pantothenate or pantothenate analog to the CoaX protein[;

wherein the compound is identified as a potential antibiotic based on the ability of the compound to modulate binding of the pantothenate or pantothenate analog to the CoaX].

18. (Amended) [A method for identifying compounds which modulate pantothenate kinase activity comprising contacting] The assay of claim 37 wherein the assay composition comprises a recombinant cell expressing a single pantothenate kinase encoded by a *coaX* gene [with a test compound and determining the ability of the test compound to modulate pantothenate kinase activity in said cell].

18. (Amended) [A method for identifying compounds which modulate pantothenate kinase activity] The assay of clam 37 wherein the assay composition comprises [comprising contacting] a recombinant cell expressing a first and second pantothenate kinase, [with a test compound and determining the ability of the test compound to modulate pantothenate kinase activity in said cell,] wherein the first or second pantothenate kinase has reduced activity.